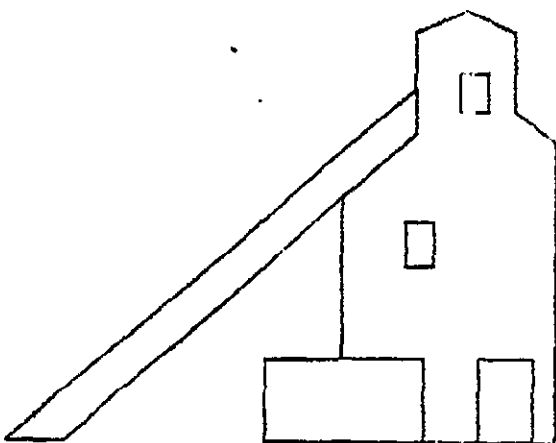
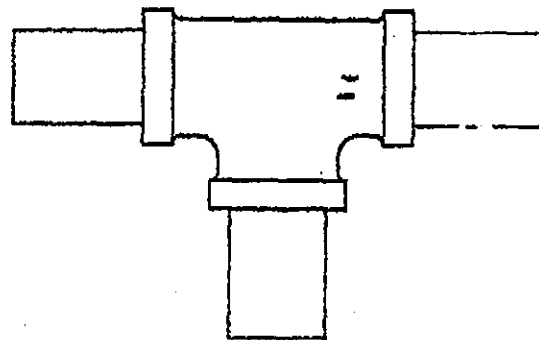
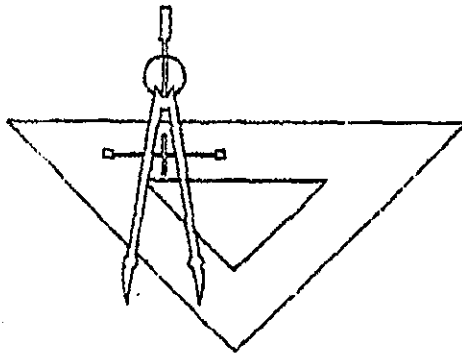
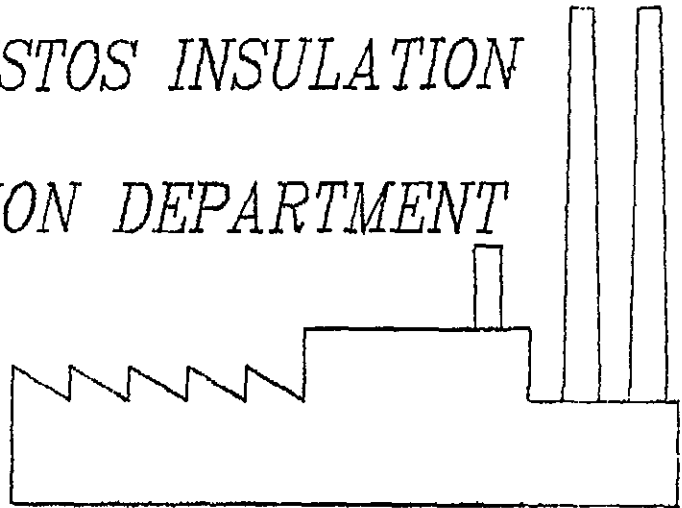
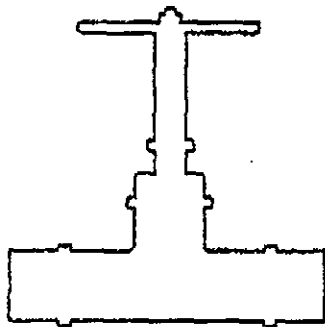


SURVEY OF ASBESTOS INSULATION FOSSIL PRODUCTION DEPARTMENT



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DUKE POWER COMPANY

FOSSIL PRODUCTION DEPARTMENT

A SURVEY OF INSULATION CONTAINING ASBESTOS

DIRECTION

Ordered performed by Fossil Management with results due in 90 days.

SCOPE

Survey the stations for asbestos insulation and figure a cost for removal and replacement of said materials. This study does not include bonded asbestos board commonly used for certain enclosures around our plant areas nor does it include the cost of disposal at county landfills. All combustion turbines are included. (The asbestos board was not included because it does not emit fibers unless exposed to a grinding or sawing operation.)

PURPOSE

The figures obtained will be used by management in the decision making process pertaining to asbestos removal and replacement.

Cost Analysis

1. Total Linear Feet Piping Insulation	<u>302,309 L.FT.</u>
2. Total Cost for Piping Insulation	<u>\$1,567,235.56</u>
3. Total Square Feet Block Insulation	<u>3,323,508 SQ.FT.</u>
4. Total Cost for Block Insulation	<u>\$3,674,374.05</u>
5. Total Accessory Materials for Insulation	<u>\$1,885,432.27</u>
6. Total Man-Hours Required	<u>2,913,213.25 Hrs.</u>
7. Total Labor Cost	<u>\$53,923,577.25</u>
8. Total Cost for Fossil Production	<u>\$61,050,619.13</u>

A breakdown of costs per station is found in attachment number 1. Please note these figures vary due to size of units and prior asbestos removal efforts.

An example of how these figures were arrived at is found in attachment number II and III, the study of Marshall and Allen.

Aluminum jacketing was figured into the cost of replacement for all piping due to economical and physical protection reasons. Our justification is found in attachment IV, the logic for using metal lagging on piping.

DISPOSAL

It is felt that the on-site disposal of asbestos is more cost effective than answering to the requirements and costs of county landfills. The main factor here is that we will be in control of our waste, not the county. Under Superfund, we could possibly be made to reclaim our waste at a future date that was deposited in county landfills. (The interpretation of the law concerning Superfund was made by Duke's Legal Staff.)

WORKFORCE REQUIREMENTS

While we know the use of Contractors is necessary in some cases, we feel Duke Power Personnel can do the job quicker, more professional and in some cases, less cost. The logic is discussed in Attachment V.

SCHEDULING OF WORK

A schedule has been completed along with the manpower requirements to complete the jobs in the necessary time frame. Options A and B are found in Attachment VI.

BELEWS CREEK

Belews Creek was not included in the study because we felt it would not be cost effective for a total removal effort. Of the total insulation found at Belews Creek, it is estimated that 80% of the insulation is Asbestos Free. We recommend that Belews Creek be handled on an outage by outage basis with insulation removal being determined by positive or negative test results.

CONCLUSION

It is our recommendation that appropriate funds and manpower be made available to implement and complete an asbestos removal project in our fossil stations. With many of our

units in PMP, the time would be ideal to start this undertaking. Another factor to consider is replacement materials for asbestos is at an all time low. Calcium Silicate has dropped approximately 50% since 1982. The labor required to complete this project will increase as time passes, plus many of our stations are in bad need of repair now.

It is further recommended that an Insulation Preventative Maintenance Program be implemented at each station. Insulation is a costly integral part of our operational process and should be treated as such. We observed many areas in need of minor repair that if left unattended, could develop into major cost items.

The last factors to consider are the uncertainty of regulatory agencies in the rule making process with respect to asbestos and possible future compensation cases concerning asbestos exposure. Both of these factors could very well quadruple our cost figures if they become a reality.

This study was accomplished by use of Duke Power and Combustion Engineering prints. Where prints were not available, actual measurements were accomplished. Man-hours were figured by using past history on similar jobs (time reports) meshed in some cases with estimation.

The evaluation was conducted and completed in seventy (70) working days by Wayne Eidson of Fossil Production and Sid Mauney of CMD.

Attachment I
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INSULATION CONTAINING ASBESTOS SURVEY

Allen Steam Station

Total Linear Ft. Piping	<u>86,618 L.FT.</u>	Cost Insulation	<u>\$377,749.30</u>
Total Square Ft. Block	<u>926,130 SQ.FT.</u>	Cost	<u>1,031,550.40</u>
Accessory Material		Cost	<u>350,482.12</u>
Total Man-hours	<u>761,675 HRS.</u>	Cost Labor	<u>14,098,604.25</u>
		Total Plant Cost	<u>\$15,858,385.07</u>

Buck Steam Station

Total Linear Ft. Piping	<u>19,491 L.FT.</u>	Cost Insulation	<u>\$ 98,832.44</u>
Total Square Ft. Block	<u>355,445 SQ.FT.</u>	Cost	<u>399,667.24</u>
Accessory Material		Cost	<u>193,026.19</u>
Total Man-hours	<u>276,728 HRS.</u>	Cost Labor	<u>5,122,235.28</u>
		Total Plant Cost	<u>\$ 5,813,761.15</u>

Cliffside (1-4) Steam Station

Total Linear Ft. Piping	<u>18,262 L.FT.</u>	Cost Insulation	<u>\$ 65,844.19</u>
Total Square Ft. Block	<u>216,724 SQ.FT.</u>	Cost	<u>241,813.06</u>
Accessory Material		Cost	<u>160,717.31</u>
Total Man-hours	<u>184,685 HRS.</u>	Cost Labor	<u>3,418,519.35</u>
		Total Plant Cost	<u>\$ 3,886,893.91</u>

Cliffside (5) Steam Station

Total Linear Ft. Piping	<u>23,554 L.FT.</u>	Cost Insulation	<u>\$129,999.76</u>
Total Square Ft. Block	<u>15,475 SQ.FT.</u>	Cost	<u>17,768.80</u>
Accessory Material		Cost	<u>89,426.27</u>
Total Man-hours	<u>89,379 HRS.</u>	Cost Labor	<u>1,654,405.29</u>
		Total Plant Cost	<u>\$ 1,891,600.12</u>

Buzzard Roost Station

Total Square Ft. Block	<u>9,000 SQ.FT.</u>	Cost	<u>10,080.00</u>
Accessory Material		Cost	<u>6,516.00</u>
Total Man-hours	<u>6,816 HRS.</u>	Cost Labor	<u>126,164.16</u>
		Total Plant Cost	<u>\$ 142,760.16</u>

Attachment I
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INSULATION CONTAINING ASBESTOS SURVEY

Dan River Steam Station

Total Linear Ft. Piping	<u>17,886 L.FT.</u>	Cost Insulation	\$ 61,088.05
Total Square Ft. Block	<u>268,591 SQ.FT.</u>	Cost	298,303.12
Accessory Material		Cost	181,394.53
Total Man-hours	<u>208,057.25 HRS.</u>	Cost Labor	3,851,139.70
		Total Plant Cost	\$ 4,391,925.40

Lee Steam Station

Total Linear Ft. Piping	<u>23,834 L.FT.</u>	Cost Insulation	\$ 91,883.93
Total Square Ft. Block	<u>333,597 SQ.FT.</u>	Cost	371,068.88
Accessory Material		Cost	202,949.47
Total Man-hours	<u>263,114 HRS.</u>	Cost Labor	4,870,240.14
		Total Plant Cost	\$ 5,536,142.42

Marshall Steam Station

Total Linear Ft. Piping	<u>83,000 L.FT.</u>	Cost Insulation	\$617,134.85
Total Square Ft. Block	<u>784,857 SQ.FT.</u>	Cost	858,104.38
Accessory Material		Cost	439,865.10
Total Man-hours	<u>712,633 HRS.</u>	Cost Labor	13,190,836.83
		Total Plant Cost	\$15,105,941.16

Riverbend Steam Station

Total Linear Ft. Piping	<u>29,664 L.FT.</u>	Cost Insulation	\$124,704.04
Total Square Ft. Block	<u>413,689 SQ.FT.</u>	Cost	446,018.17
Accessory Material		Cost	261,055.28
*Total Man-hours	<u>410,126 HRS.</u>	Cost Labor	7,591,432.26
		Total Plant Cost	\$8,423,209.75

* Includes man-hours required for removal of 12,000 L.FT. of insulation and 73,704 SQ.FT. of block on the old end. No replacement required.